DRAFT
ENGINEERING EVALUATION REPORT
IRVINGTON MEMORIAL CEMETERY & CREMATORY
PLANT NUMBER 4134
APPLICATION NUMBER 14892

BACKGROUND

Irvington Memorial Cemetery & Crematory has applied to obtain an Authority to Construct and a Permit to Operate a human cremator at their facility in Fremont, CA. The cremator is a source of toxic air contaminants and will be located within 1000 feet of the nearest school. The cremator is subject to a health risk screening analysis, and public notice requirements of Regulation 2-1-412.

A health risk screening was performed (memorandum dated 9/11/2006) based on toxic air contaminant (TAC) emissions from the proposed 2300 cremations per year at the new cremator. Results from the analysis indicate an estimated maximum cancer risk of 2 in a million, a chronic hazard index of 0.09, an acute hazard index of 0.02, and monthly averaged ambient air concentrations of lead are well below levels that would impact blood lead levels in children. In accordance with the District's Regulation 2 Rule 5, these risk levels are acceptable if the cremator meets the requirements for TBACT. The cremator complies with TBACT as determined in the TBACT determination section of this report.

This project was public noticed on **October 25, 2006**. A total of ***to be determined*** responses were received. The comments and District responses are summarized below.

to be determined

The application covers the following source:

S-6 Crematory Retort for human remains, Mathews Cremation Division, Model IE43-SPP, with an integral afterburner, natural gas fired, 2.0 MMBTU/hr, 250 lbs/hr max.

EMISSION CALCULATIONS

1. Natural Gas Combustion

Basis:

1. Firing rate = 2.0 MMBTU/hr; average gross heating value of natural gas = 1020 BTU/cu.ft.; Natural gas usage = 1960 cu.ft./hr.
2. Operating schedule: 20 hrs/day; 7 days/wk; 52 wks/yr.
3. Emission factors for PM10, SO2, NOX, CO, and POC are taken from chapter 1.4 of AP-42, 7/98, Tables 1.4-1, and 1.4-2.

Emission Rate:

Pollutant	lb/MM cu.ft.	Lb/hr	Lb/day	ton/yr
PM10	7.6	0.015	0.3	0.054
NOX	100	0.2	3.95	0.72
SO2	0.6	neg.	neg.	neg.
CO	84	0.17	3.36	0.6
POC	11	0.022	0.44	0.08

2. Pathological Waste Combustion

In addition to natural gas combustion, there are also emissions attributed to casket and body.

Basis:

a. Cremation Rate = 140 lbs/hr; 0.44 ton/day; 160 tons/yr
b. Operating schedule: 20 hrs/day; 7 days/wk; 52 wks/yr
c. Emission factors are based on source tests and taken from the interoffice memo of 8/3/94 (Ref.: PHBK Chapter 11.5)

Emission Rate

Pollutant	EF, lb/ton	lb/day	ton/yr
PM-10	3.0	1.32	0.24
Nox	3.0	1.32	0.24
SOx	1.0	0.44	0.08
CO	2.5	1.1	0.2
POC	0.1	0.044	0.008

EMISSION SUMMARY

PM10 = 0.054 tpy + 0.24 tpy = 0.294 tpy
NOx = 0.72 tpy + 0.24 tpy = 0.96 tpy
SOx = 0.08 tpy
CO = 0.6 tpy + 0.2 tpy = 0.8 tpy
POC = 0.08 tpy + 0.008 tpy = 0.088 tpy

PLANT CUMULATIVE INCREASE

PM10 = 0.294 tpy
NOX = 0.96 tpy
CO = 0.8 tpy
POC = 0.088 tpy
SOx = 0.08 tpy

TOXIC EMISSIONS AND RISK SCREEN ANALYSIS

Emissions of toxic compounds and health risk screening analysis are presented in the attached memorandum dated 9/11/2006 from Jane Lundquist.

Based on the applicant's proposed 2300 cremations/yr, the maximum cancer risk is 2 in a million. A cancer risk of 10 in a million is acceptable in accordance with the District's Regulation 2 Rule 5 if the cremator meets the requirements of TBACT. The cremator will comply with the requirements of TBACT.

TBACT DETERMINATION

TBACT for a cremator is firing with natural gas and the operating temperature in the secondary chamber at or above 1650 degrees Fahrenheit (Ref: CARB Test Report #ARB/ML-93-032, October 1992).

STATEMENT OF COMPLIANCE

On the basis of the information submitted, the cremator will comply with the requirements of Regulations 6-301, Ringelmann 1 Limitation, and 6-310, Particulate weight limitation.

The permit application is not subject to the California Environmental Quality Act (CEQA) because the evaluation is a ministerial action conducted using the fixed standards and objective measurements outlined in the District's Permit Handbook Chapter 11.5. The permit application is exempt from CEQA because the permit evaluation is a ministerial action. The Procedures for Ministerial Evaluation (Section 2-1-427) and Criteria for Approval of Ministerial Permit Applications (Section 2-1-428) have been complied with in the determination that this application is exempt from CEQA.

A toxic risk screen analysis is required because toxic compound emissions are expected above the toxic trigger levels. The cremator is subject to and expected to comply with the requirements of TBACT.

BACT, and offset requirements of Regulation 2 Rule 2 are not triggered for NOX, and POC emissions less than 10 lbs/day, and for a facility with less than 10 tpy of emissions respectively.

The source is subject to the public notification requirements of Regulation 2-1-412, Public Notice, Schools, because there are schools within 1000 feet of the source.

NSR, PSD, NSPS, and NESHAPS are not triggered.

PERMIT CONDITIONS

S-6, Crematory Retort:

1. The owner/operator shall not cremate more than 2300 human remains per consecutive 365 days period at S-6. A daily record for the operating hours, number of cremations, and the operating rate shall be kept in a District approved logbook to demonstrate compliance with this condition. The records shall be kept on site for at least 24 months from the date of

data entry and be made available to the District staff for inspection. (basis: cumulative increase; toxic risk screen)

2. The owner/operator shall maintain the operating temperature at a minimum of 1650 degree Fahrenheit in the secondary chamber of the cremator during the cremation mode. Any temperature excursion below 1600 degree Fahrenheit during the cremation mode will be considered a violation of this permit condition. The owner/operator shall equip the cremator with a District approved continuous temperature monitoring and recording device to ensure compliance with this condition. The location of the thermocouple shall be approved by the Source Test Section of the District. Natural gas input to the secondary chamber burner shall be increased, if necessary, to increase temperature sufficiently to control odor and visible plume.(basis: Regulation 6-301, 6-310; TBACT)
3. After the shutdown, no cremation shall take place until the owner/ operator has preheated the cremator so that the temperature in the secondary chamber is at least 1650 degree Fahrenheit. (basis: Regulation 6-301, 6-310; TBACT)
4. The owner/operator shall fire the cremator with natural gas only. (basis: cumulative increase; TBACT)
5. The owner/operator shall use the cremator to cremate only human remains. No other material contaminated with toxic air contaminants as listed by Air Resources Board, including radioactive and bio-hazardous waste shall be incinerated in this cremator without prior approval of the District. (basis: cumulative increase; toxic risk screen)

6a. The owner/operator shall process the following materials only: human remains, body bags required by OSHA or other regulations, cremation containers and cremation caskets, personal effects and mementos including no more than 5 pounds of combustible synthetic materials per cremation.

6b. The owner/operator shall not process prosthetic limbs or any other external medical device in the cremator.

6c. Only chlorine-free body bags shall be provided by the owner/operator for cremations at S-6. Body bags provided by others are not subject to this restriction. (basis: Cumulative Increase, toxic risk screen)

7. The District may require the owner/operator of the cremator to conduct a District approved source test to determine particulate matter, hydrocarbon, NOX, CO, O2, HCl, and toxic emissions under unusual conditions, such as: obese case, disaster bags. The Source Test Section of the District shall be contacted to obtain approval for the source test method. The Source Test Section shall be notified at least 7 days in advance of any expected source test. A copy of source test report for each test shall be provided to the District within 30 days of source test date. (basis: cumulative increase; toxic risk screen)
8. The owner/operator shall equip the cremator with sampling ports and platforms, the location of which shall have the approval of the Source Test Section of the District. (basis: Regulation 6-310)
9. An operator shall be present at all times during cremations. (basis: Regulation 6-301)
10. The owner/operator shall maintain the cremator in good working condition. The date and detailed description of the type of maintenance done on the cremator shall be recorded in a District approved logbook. (basis: Regulation 6-301, 6-310)
11. The owner/operator shall keep all monitoring, source test, and maintenance records as required per conditions 2, 7, and 10 on site for

at least two years from the date of data entry, and shall make them available to the District staff for inspection.
(basis: cumulative increase, TBACT; Regulation 6-301, 6-310)

RECOMMENDATIONS

It is recommended that Irvington Memorial Cemetery & Crematory shall be issued an Authority to Construct the cremator described in the background section of this report.

EXEMPTION: None.

BY:_____ Date:___9/25/06_____
Dharam Singh, AQE II